Office of Epidemiology

December 2003 | Utah Department of Health

inside...

The Epidemiology Newsletter is published monthly by the Utah Department of Health, Division of Epidemiology and Laboratory Services, Office of Epidemiology, to disseminate epidemiologic information to the health care professional and the general public.

Newsletter Archives

Send comments to:
The Office of Epidemiology
P.O. Box 142104
Salt Lake City, UT 84114-2104
(801) 538-6191
epi@utah.gov

24 hour Disease/Injury Reporting Number
1- 801-538 6191 or 1-888-EPI UTAH (374-8824)
Email: epi@utah.gov Fax 1-801-538-9923

Approval 8000008:
Appropriation 3705

Scott Williams, MD, MPH, Executive Director
Utah Department of Health

Charles Brokopp, Dr.P.H.
Division of Epidemiology and Laboratory Services

Robert Rolfs, MD, MPH, State Epidemiologist
Office of Epidemiology

Gerrie Dowdle, MSPH, Manager
Disease and Outbreak Management Program, Editor

Connie Dean
Production Assistant

An Outbreak of Botulism in a Rural Utah Community – October 2003

Utah Department of Health (UDOH) was notified of two possible cases of botulism on October 13, 2003. An elderly woman with nausea, vomiting, diarrhea, weakness, and difficulty swallowing was taken to the hospital by her husband on October 12. She was admitted, and he returned home despite experiencing diarrhea and vomiting that day. On October 13, the man awoke with a "choking sensation", difficulty breathing, and inability to swallow and was transported to the same hospital. An alert clinician recognized that the two cases were linked and suspected botulism based on the progression from gastrointestinal symptoms to neurological symptoms suggesting cranial nerve dysfunction in both patients.

On admission, the 92-year old man, caretaker for his 87-year old wife who suffered from dementia, provided a 24-hour food history that included home-prepared food, food delivered by neighbors, and at least one meal from Meals-on-Wheels. After communication including CDC, the Utah Department of Health, and the attending physician, botulism antitoxin was released at 7:30 p.m. on October 13 and arrived at the rural Utah hospital at 5:00 a.m. on October 14. No laboratory specimens were submitted for her, and she died at 10:30 a.m. on October 14. Stool and serum specimens were obtained from the husband before antitoxin administration began. Despite timely receipt of botulism antitoxin and hospital care, the husband died on October 17. Autopsies were not performed on either decedent.

Local public health investigators contacted neighbors who had brought food to the couple and other Meals-on-Wheels recipients, and the attending physician alerted the local emergency room, but no additional cases were detected. Local health department epidemiologists visited the couple's home and found evidence of previous home canning (with some jars labeled as early as 1990). They collected food samples for laboratory analysis, including a partially consumed jar of home-canned tomato juice from the refrigerator. The family had discarded some food items before investigators visited the house.

Initial laboratory testing on the stool and serum specimens from the husband were negative for botulism toxin. Inoculation into mice of an enrichment broth culture of the stool indicated the presence of type A botulinum toxin.

Laboratory testing of suspect foods (meatloaf, home-canned tomato juice, home-canned pear/prune sauce, home-canned chili sauce, whole tomatoes, and honey) from the home did not identify botulinum toxin or the presence of *C. botulinum*.

This appears to have been an isolated incident of botulism intoxication. No commercially distributed foods were implicated. The UDOH is working with the USDA to develop messages regarding safe home canning procedures.

Botulism occurs in four varieties, depending on the mode of exposure to the toxin. Foodborne botulism results from consumption of a food item containing the botulinum toxin. Wound botulism occurs when *C. botulinum* reproduce and produce toxin in a wound. Germination of *C. botulinum* in the intestinal tract causes intestinal botulism in infants (infant botulism) and occasionally adults. Food contamination causes most cases of botulism in adults (1).

Botulism may initially present as gastrointestinal symptoms such as constipation, diarrhea, or vomiting. Typical symptoms of botulism include: weakness, blurred or double vision, dry mouth, and difficulty swallowing or speaking (the 4 “d”s, dysarthria, diplopia, dysphagia, and dysphonia). The characteristic features of intoxication are symmetric, descending weakness or flaccid paralysis and cranial nerve impairment in an afebrile and usually alert victim (2).

Several factors complicated this investigation. The male patient was agitated about the death of his wife and ventilated via a tracheostomy. Both of these situations prevented him from speaking clearly and easily with the local health department epidemiologists investigating the incident. The patients’ family cleaned the home before the local health department could collect samples for laboratory testing. It is possible that the contaminated food item had been discarded and was not collected. Investigators collected food samples from what remained in the refrigerator and took some opened jars from the trash receptacle in the kitchen. Laboratory testing for botulism is expensive in terms of both time and resources.

The response to and investigation of this botulism outbreak provided a valuable exercise of cooperation at the local, state, and national levels needed for an effective response to a possible bioterrorism agent. The symptomatic presentation was atypical for botulism, but an astute physician recognized the possibility and initiated the appropriate public health response.

Every suspected case of botulism intoxication constitutes a potential public health emergency regardless of the circumstances of exposure. Physicians should emergently contact their local or state public health department upon suspicion of botulism intoxication so that antitoxin may be released for treatment and epidemiologists can begin investigating the situation and possibly prevent more cases. Before submitting laboratory specimens for botulism testing, physicians should consult with their diagnostic laboratory about specimen collection and handling procedures.

The potential for a case of botulism to be an indicator of bioterrorism increases the importance of immediate reporting by clinicians and immediate response by public health agencies. The American Medical Association’s Working Group on

Civilian Biodefense considers botulism toxin to be a bioterrorism threat because, "…of its extreme potency and lethality; its ease of production, transport, and misuse; and the need for prolonged intensive care among affected persons" (3, p. 1059). Botulinum toxin could be released deliberately as an aerosol or in food, but waterborne dispersal is considered unlikely (3).

The Working Group suggested four outbreak features that would suggest intentional use of botulism as a weapon: numerous cases "of acute flaccid paralysis with prominent bulbar palsies"; an unusual type of botulinum toxin for the region or suspect vehicle; cases without common dietary exposure but with a common geographic factor; and "multiple simultaneous outbreaks with no common source" (3).

Note: This article has also been submitted to the MMWR.

Credits:

Bruce Hendrix, MD, IHC Valley View Medical Center, Cedar City, UT
Penny Ludwinski, DVM, Regional Epidemiologist, Utah Department of Health
Marilee Poulson, Enteric/Foodborne Disease Epidemiologist, Utah Department of Health
Gerrie Dowdle, MSPH, Disease and Outbreak Management Director, Utah Department of Health
Felicia Alvarez, BA, Epidemiologist, Utah Department of Health
Lauren Moulton, MPH, Epidemiologist, Utah Department of Health
Barbara Jepson, MPA, MT(ASCP), Director Bureau of Microbiology, Utah Department of Health Laboratory
Christina Ann Peterson, PhD, MSPH, Utah Department of Health
Robert Rolfs, MD, MPH, State Epidemiologist, Utah Department of Health

References:

1. Centers for Disease Control and Prevention: Botulism in the United States, 1899 – 1996. Handbook for Epidemiologists, Clinicians, and Laboratory Workers, Atlanta, GA. Centers for Disease Control and Prevention, 1998.

2. American Public Health Association. 2000. Control of Communicable Diseases Manual. 17th Edition. Chin, J. (Ed). American Public Health Association: Washington DC.

3. Arnon SS, Schechter R, Inglesby TV, et al. Botulinum Toxin as a Biological weapon: medical and public health management. Journal of the American Medical Association. 2001;285(8):1059-1070.

Some Chlamydia Become Chlamydophila

The bacterial genus “Chlamydia” has long been known to contain a diverse group of organisms. Recently, taxonomists announced that the genus was being split and that some common organisms would be getting new names.

- *Chlamydia trachomatis* is staying with the old genus and is not being renamed.
- *Chlamydia pneumoniae* and *psittaci* are being moved to a new genus: Chlamydophila!

So their new names are:

- *Chlamydophila pneumoniae* and *Chlamydophila psittaci*

It is very frustrating when familiar organisms receive new names. So why does it happen?

Taxonomist's jobs are to ensure that organisms are "catalogued" correctly. It has been known for a long time that the genus Chlamydia contains organisms that are not closely related. They have studied the 16sRNA sequences to determine if a more logical rearrangement is possible. Once a rearrangement is decided upon, then the new names are provided to the medical community.

Another recent change has been to combine three similar viruses that cause abrupt-onset nausea/vomiting/diarrhea to the genus Norovirus. Norovirus includes Norwalk and Norwalk-like viruses, caliciviruses, and Small Round Structured Viruses (SRSV).